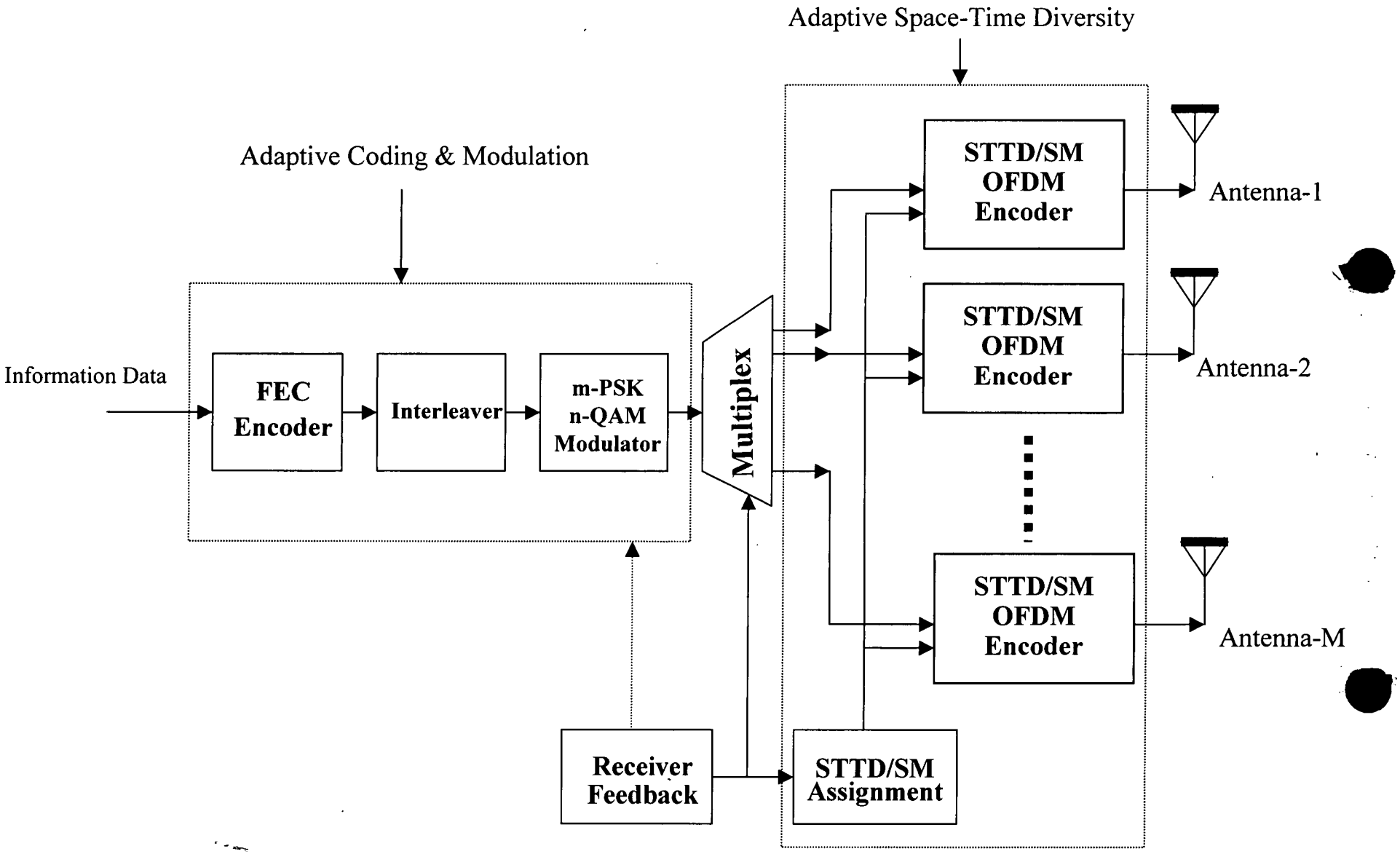

Adaptive Space-Time Diversity
Adaptive Coding & Modulation
Information Data
FEC Encoder
Interleaver
m-PSK n-QAM Modulator
Multiplex
STTD/SM OFDM Encoder
STTD/SM OFDM Encoder
STTD/SM OFDM Encoder
Antenna-1
Antenna-2
Antenna-M
Receiver Feedback
STTD/SM Assignment

Figure-1

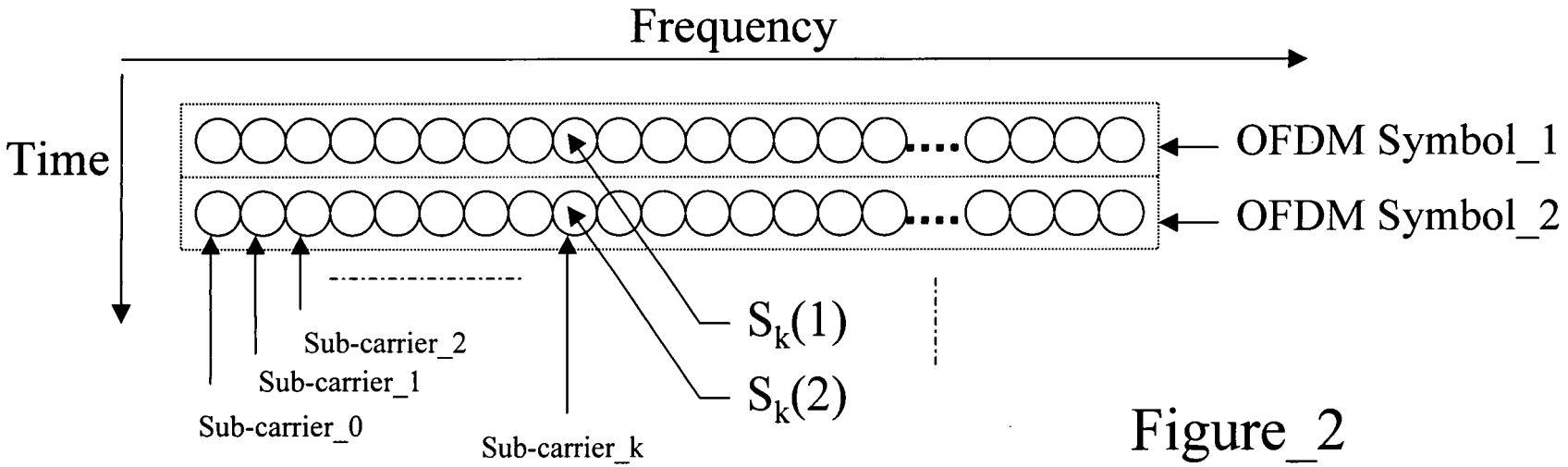


Figure_2

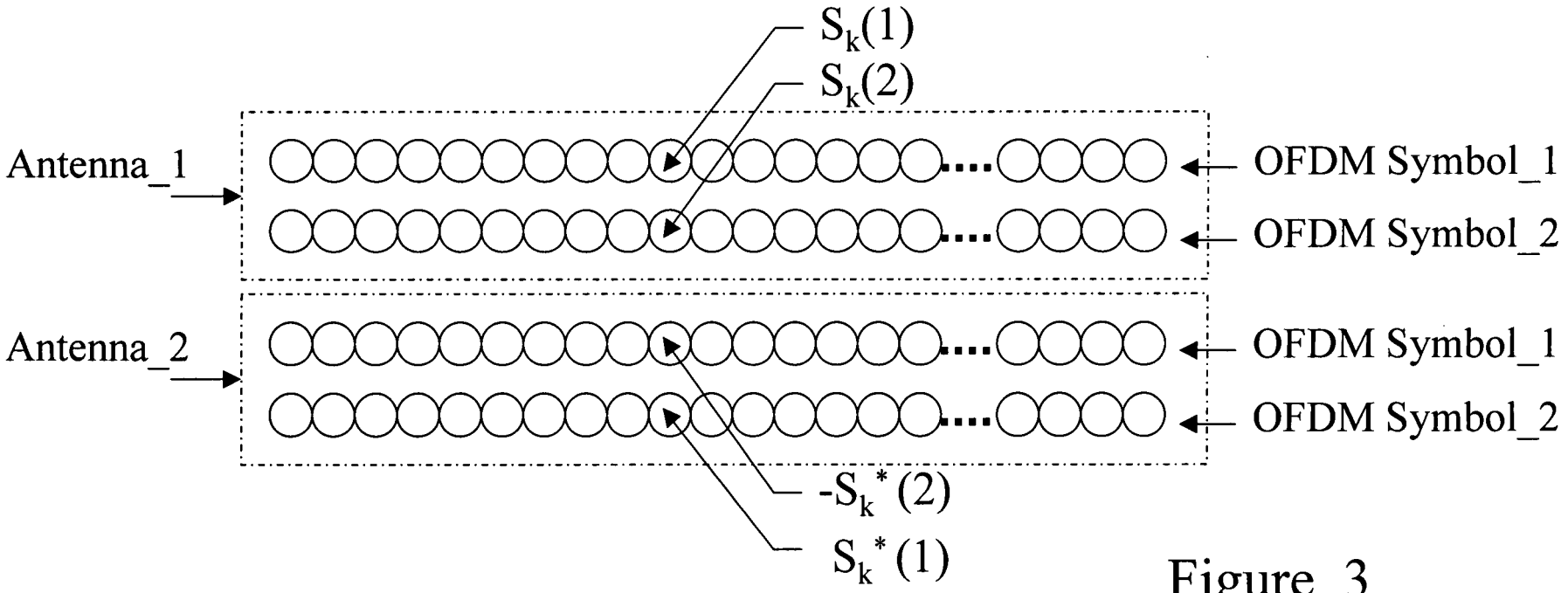


Figure_3

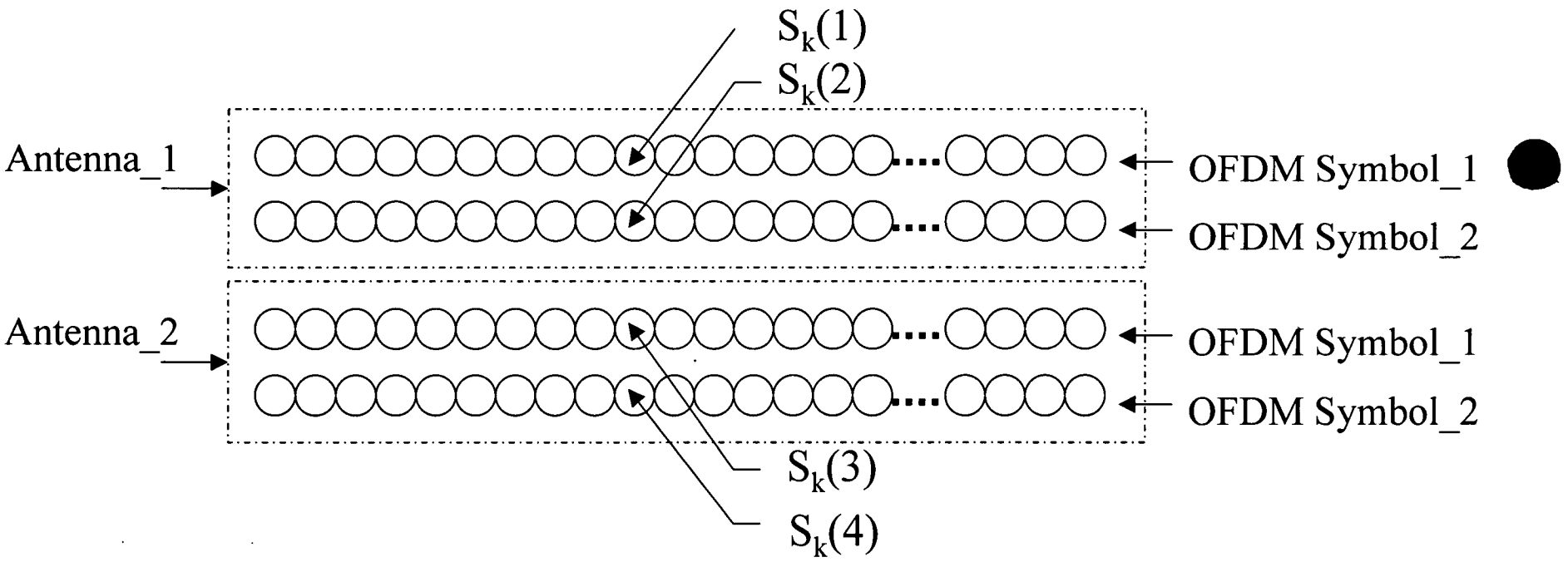

$S_k(1)$
$S_k(2)$
Antenna_1
OFDM Symbol_1
OFDM Symbol_2
Antenna_2
OFDM Symbol_1
OFDM Symbol_2
$S_k(3)$
$S_k(4)$

Figure_4

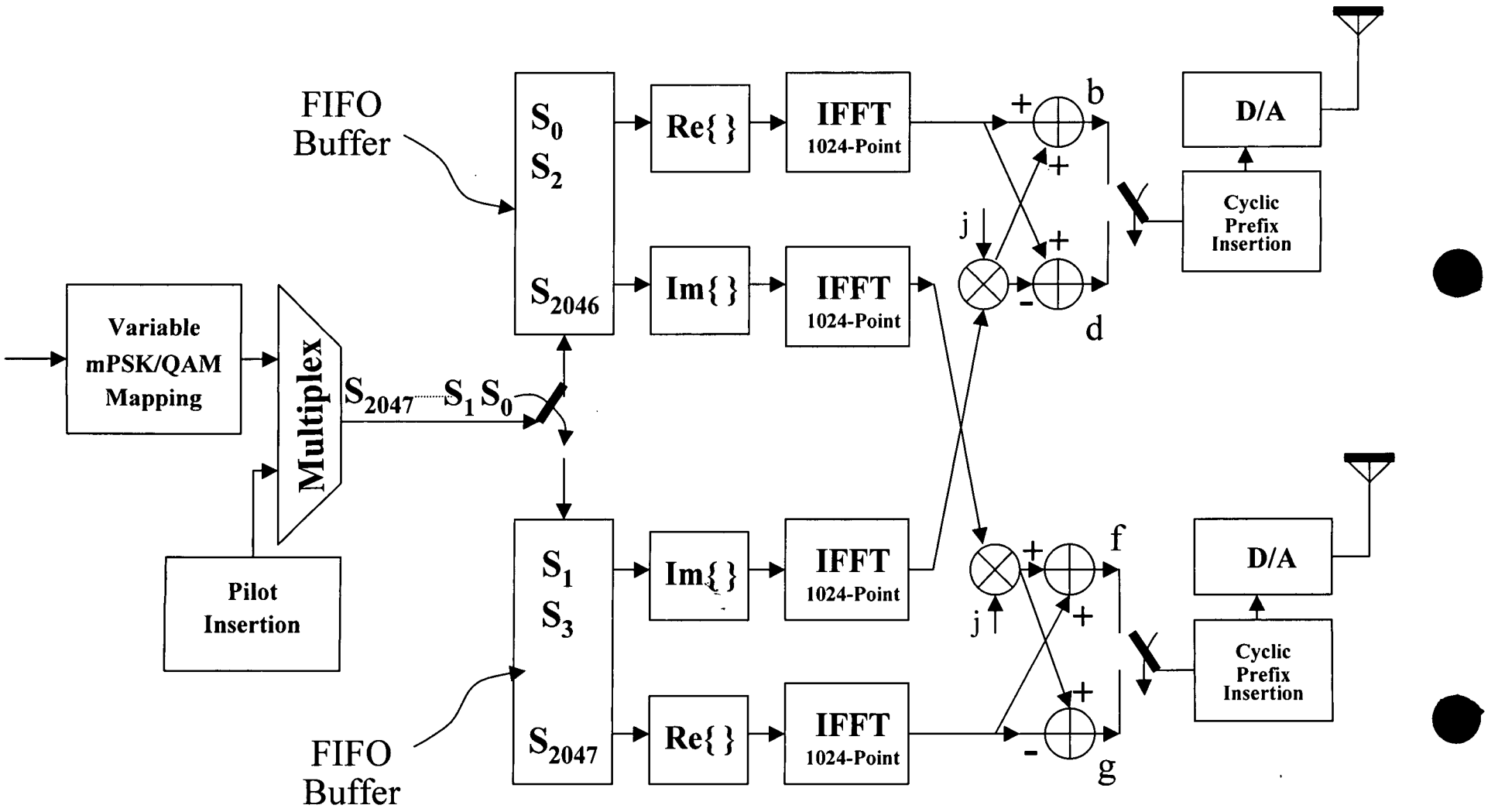

FIFO
Buffer
S_0
S_2
S_{2046}
Re{ }
Im{ }
IFFT
1024-Point
IFFT
1024-Point
b
d
D/A
Cyclic
Prefix
Insertion
j
Variable
mPSK/QAM
Mapping
Multiplex
S_{2047} ..... S_1 S_0
Pilot
Insertion
S_1
S_3
S_{2047}
Im{ }
Re{ }
IFFT
1024-Point
IFFT
1024-Point
f
g
D/A
Cyclic
Prefix
Insertion
j
FIFO
Buffer

Figure_5

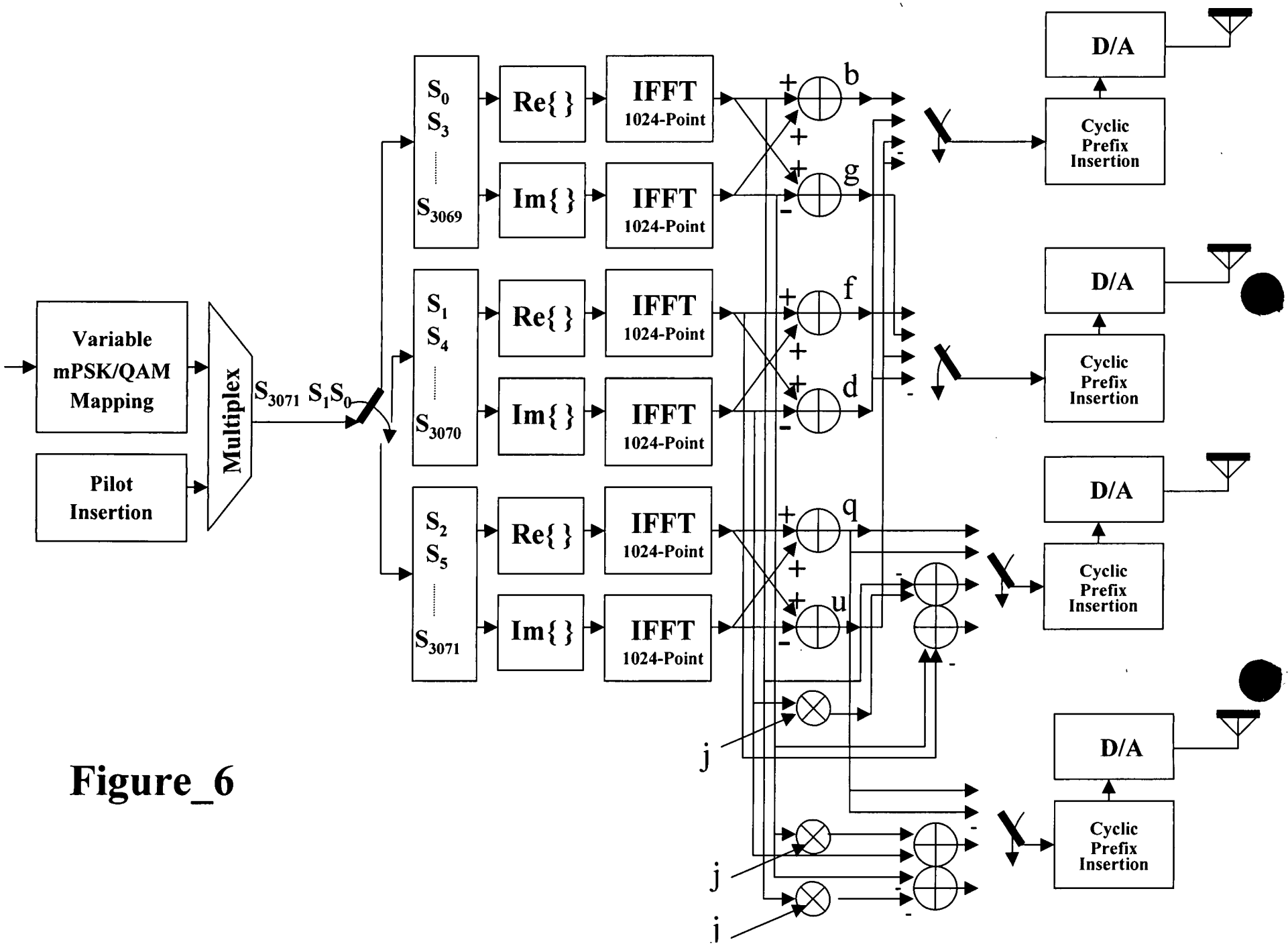

Variable mPSK/QAM Mapping
Pilot Insertion
Multiplex
S_{3071} S_1S_0
S_0 S_3 ... S_{3069}
S_1 S_4 ... S_{3070}
S_2 S_5 ... S_{3071}
Re{ }
Im{ }
IFFT 1024-Point
b
g
f
d
q
u
j
j
j
D/A
Cyclic Prefix Insertion

Figure_6

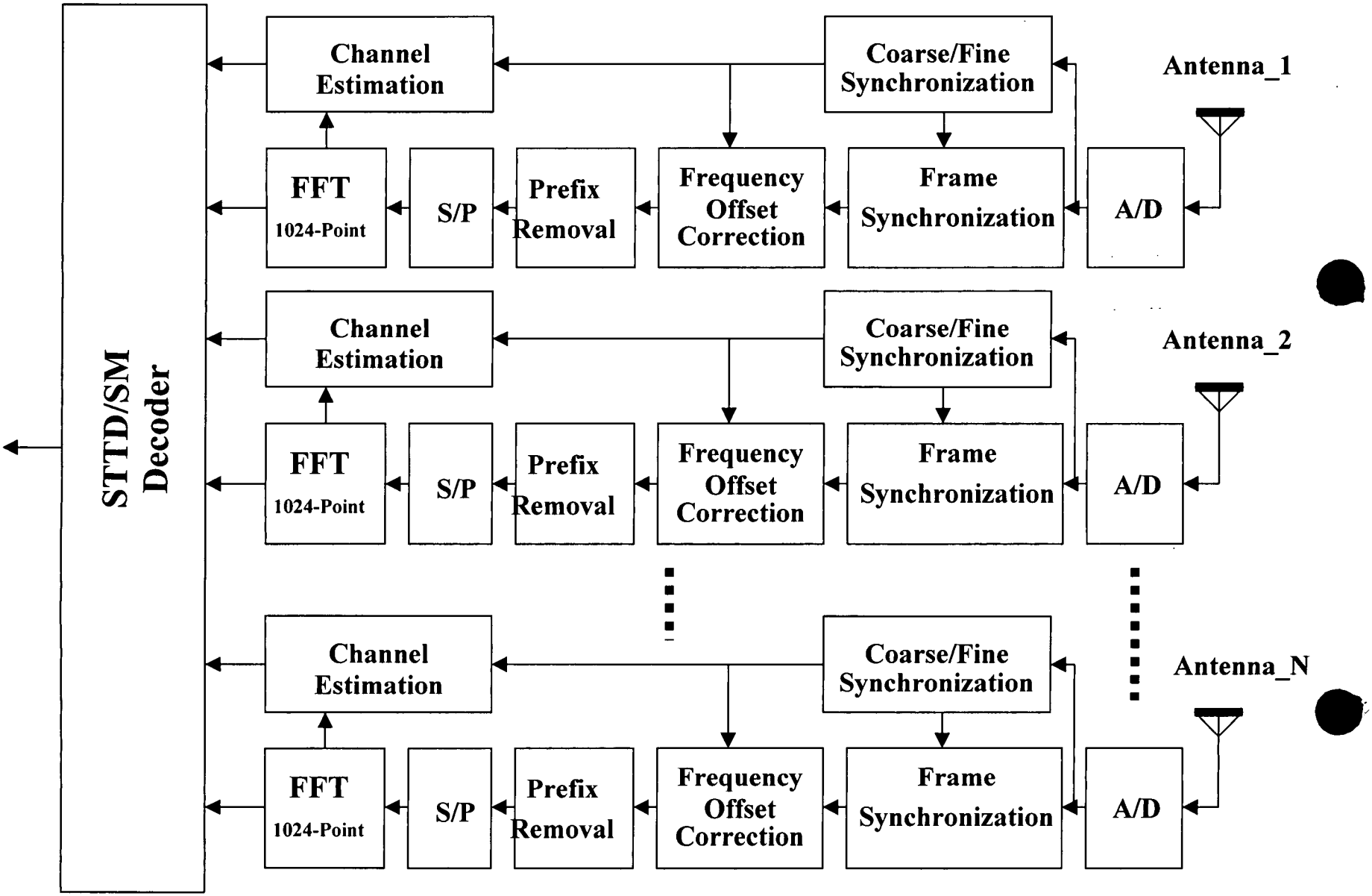
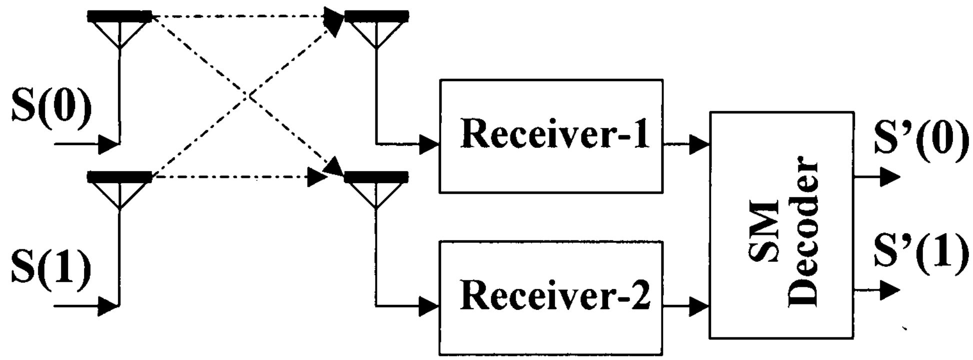
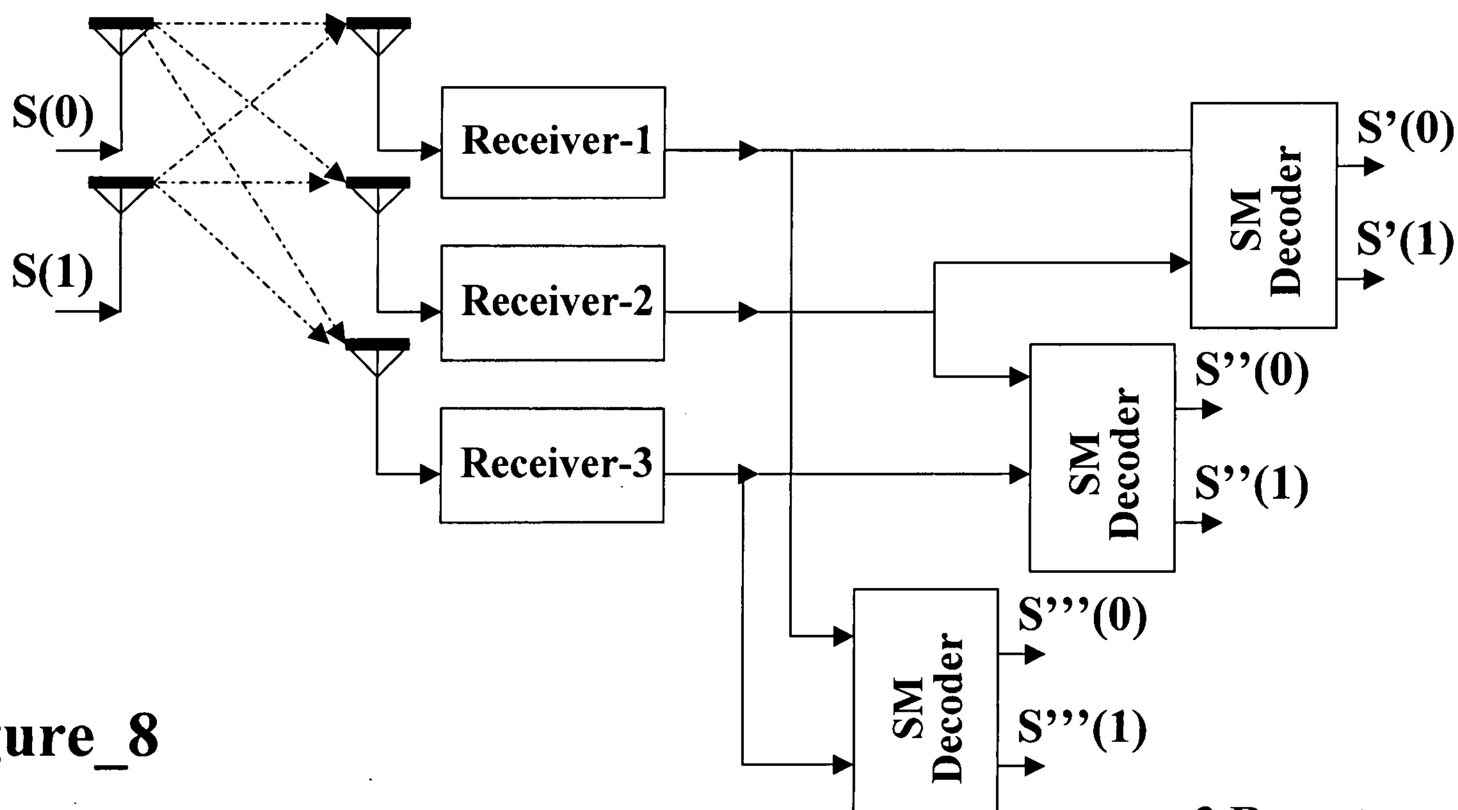

STTD/SM Decoder
Channel Estimation
Coarse/Fine Synchronization
Antenna_1
FFT 1024-Point
S/P
Prefix Removal
Frequency Offset Correction
Frame Synchronization
A/D
Channel Estimation
Coarse/Fine Synchronization
Antenna_2
FFT 1024-Point
S/P
Prefix Removal
Frequency Offset Correction
Frame Synchronization
A/D
Channel Estimation
Coarse/Fine Synchronization
Antenna_N
FFT 1024-Point
S/P
Prefix Removal
Frequency Offset Correction
Frame Synchronization
A/D

Figure_7



2 Rx antennas case



3 Rx antennas case

Figure_8